

Claims

1. A generator for generating an electric current comprising
current generating means comprising first generator means and
5 second generator means arranged to generate electric current in response
to relative rotation between said first and second generator means;
a first rotary part having vanes, said first rotary part arranged to
rotate in a first direction around an axis when exposed to a flow of air
perpendicular to said axis;
10 said first rotary part operatively connected to a first of said first and
second generator means; wherein
said generator further comprises first rotary part barrier means
arranged in stationary relation to said first rotary part, said barrier means
configured to provide a barrier sector comprising a barrier around a portion
15 of the vane free edge path of said first rotary part, said barrier extending
between an air inlet region in which a portion of the vane front edge path is
exposed to allow the underside of a vane to be exposed to a flow of air, and
an air outlet region in which a portion of the vane front edge path is
exposed to allow the underside of a vane to be exposed following rotation
20 through said barrier sector to allow the discharging of air,
said barrier means configured to inhibit air which follows a vane
rotating into said barrier sector from discharging outside of the vane free
edge path whilst said vane is rotating through said barrier sector.
- 25 2. A generator according to claim 1; further comprising a second

rotary part having vanes, said second rotary part arranged to rotate in a second opposite direction around said axis when exposed to a flow of air perpendicular to said axis; said second rotary part operatively connected to the second of said first and second generator means; and second rotary
5 part barrier means configured to provide a barrier sector comprising a barrier around a portion of the vane free edge path of said rotary part, said barrier means configured to inhibit air which follows a vane rotating into said barrier sector from discharging outside of the vane free edge path whilst said vane is rotating through said barrier sector.

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3. A generator according to claim 1 or claim 2, further comprising a third rotary part arranged to rotate in the same direction as, and operatively connected to the same generator means as, said first rotary part; and third rotary part barrier means configured to provide a barrier
15 sector comprising a barrier around a portion of the vane free edge path of said rotary part, said barrier means configured to inhibit air which follows a vane rotating into said barrier sector from discharging outside of the vane free edge path whilst said vane is rotating through said barrier sector.

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4. A generator according to any preceding claim wherein said rotary parts are arranged to rotate around an axial shaft comprising sections each releasably engageable with at least one other section.

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5. A generator according to any preceding claim comprising a rotary part configured to allow air to flow through said rotary part in a

direction along said axis during rotation.

6. A generator according to any preceding claim comprising inlet air ducting arranged to direct a flow of air towards an air inlet region.

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7. A generator according to any preceding claim comprising outlet air ducting arranged to direct a flow of air away from an air outlet region.

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8. A generator according to any preceding claim comprising adjustable air flow control means configured to control the flow of air into an air inlet region.

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9. A generator according to claim 3, configured such that the vanes of said first rotary part and said third rotary part are out of phase with each other.

10. A generator according to any preceding claim comprising a rotary part having a hub from which a plurality of arcuate vanes extend.

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11. A generator according to any preceding claim comprising a rotary part having rotary part binding means extending between two adjacent vanes.

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12. A generator according to any preceding claim, wherein said

current generating means comprises generator means secured in a sleeve arrangement, said sleeve arrangement configured to be positioned inside a rotary part such that said generator means is arranged about said axis.

5 **13.** A generator according to claim 12, wherein said sleeve arrangement comprises permanent magnets.

14. A generator according to claim 3, wherein said first and third rotary parts are arranged to rotate in said first direction and are operatively
10 connected to said first generator means, said first generator means comprising an armature, and said second rotary part is operatively connected to said second generator means, said second generator means comprising permanent magnets.

15 **15.** A generator according to claim 14, in which said first and second generator means are arranged within said second rotary part.

16. A generator according to any preceding claim comprising generator electrical means positioned outside of the rotary section or
20 sections of said generator.